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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,418	03/30/2005	Ya-Jane Wang	ARK007-157/02157	8357
24118	7590	06/22/2007		
HEAD, JOHNSON & KACHIGIAN 228 W 17TH PLACE TULSA, OK 74119			EXAMINER ASINOVSKY, OLGA	
			ART UNIT 1711	PAPER NUMBER
			MAIL DATE 06/22/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/506,418	Applicant(s) WANG ET AL.	
	Examiner Olga Asinovsky	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/27/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-11, 16 and 18 rejected under 35 U.S.C. 102(b) as being anticipated by Jane et al U.S. Patent 5,115,000.

The claimed invention is a synthetic polymer composition comprising starch, a thermoplastic polymer and a compatibilizer wherein a compatibilizer (or called in other way is a coupling agent) is a grafting compound grafted on to a polymer selected under Markush group specified in the present claim 6.

Jane discloses a composition comprising a granular starch, oxidized polyethylene and polyethylene which has not been modified. Oxidized polyethylene has carboxy group on the oxidized polyethylene. The oxidized polyethylene is a compatibilizer agent between the starch and polyethylene, column 2, lines 32-37. The carboxy groups on the oxidized polyethylene form ester bonds with the hydroxyl groups on the starch, column 2, lines 36-38. Although Jane does not use term “grafting” compound (for the present claim 4), it is inherent for an oxidizing process. The starch is present in the amount of from 6 to 15 % by weight, column 3, line 28. The oxidized polyethylene can be present in the amount of from 6% to 15% by weight, column 3, line 46. The ratio of the amount of

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starch to oxidized polyethylene is within the range of 1:1, column 3, lines 50-54. The amount of the ingredients is readable in the present claims. Jane discloses a process for synthesizing a biodegradable plastic composition by blending a starchy material, oxidized polyethylene and unmodified polyethylene under temperature ranging between 145 to 165 C in the double screw extrude, column 4, lines 5-11. The claimed invention is fully anticipated by the disclosure in Jane invention.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dehennau et al U.S. Patent 5,510,401 or Willett et al U.S. Patent 6,054,510.

Dehennau discloses a biodegradable film produced from a composition comprising a starch and a polymer acting as coupling agent, and a non-modified polyethylene, column 6, lines 20-35. A coupling agent is polyolefin modified by grafting maleic anhydride. A coupling agent is within the scope of claimed compatibilizer formed from polymer with grafted maleic anhydride in the present claims 4, 5 and 13. The starch includes a wheat starch and/or potato starch, column 3, lines 27-28. A process for producing a biodegradable film includes step of mixing the ingredients in a co-rotating twin screw extruder under 160 C., column 4, line 31. Although Dehennau discloses that

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a starch may be supplemented with a plasticizer (column 3, lines 11-13), the plasticizer is an optional component, column 3, line 17.

It would have been obvious to one of ordinary skill in the art to consider that a plasticizer can be eliminated in Dehennau'401 invention as an optional component, and would be obvious to select the amount of starch, coupling agent as a maleic anhydride grafted polyethylene and a non modified polyethylene in the claimed content for the purposes for obtaining the desired tensile strength and biodegradable property.

5. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jane et al U.S. Patent 5,115,000 in view of Dehennau et al U.S. Patent 5,510,401.

All discussions in the paragraphs 2 and 4 above are adequately set here.

Jane discloses oxidized polyethylene containing a carboxyl group for being a compatibilizer between the polyethylene and starch.

Dehennau discloses a maleic anhydride grafted on to polyethylene acting as a coupling agent between polyethylene and starch.

It would have been obvious to one of ordinary skill in the art to substitute the oxidized polyethylene having carboxylic group in Jane invention with a coupling agent in Dehennau invention because a maleic anhydride grafted polyethylene in Dehennau invention works within the same expectancy for being a compatibilizer between polyethylene and starch in the absence of showing of unexpected results.

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Conclusion

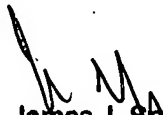
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References have been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.A.
June 20, 2007


James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700